Space Weather Highlights
01 August - 07 August 2022

SWPC PRF 2449
08 August 2022

Solar activity was at very low to low levels. C-class flares were observed on 02-03 Aug, 05 Aug, and 07 Aug. The largest was a C6/1b flare at 03/1708 UTC from Region 3068 (S15, L=210, class/area=Dso/210 on 05 Aug). The region was the most complex of the 12 numbered active regions over the past week. A Type II radio sweep (Est. 163 km/s) was associated with the event but no discernable ejecta was identified in subsequent coronagraph imagery. Two other Type II radio sweeps were observed during the week, one at 05/0657 UTC and another at 07/0226 UTC. Analysis of both events did not suggest Earth-directed ejecta was present.

Other activity included an approximate 30 degree filament eruption centered near N01E25 that began after 07/1749 UTC. Further coronagraph imagery is need to determine if there is a CME associated with the event.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels.

Geomagnetic field activity ranged from quiet to G2 (Moderate) geomagnetic storm levels. Unsettled levels over 01-03 Aug and 05 Aug appear to be associated with influence from negative polarity CH HSSs. G2 conditions were reached at the end of the day on 07 Aug and were associated with the onset of influence from a SSBC followed by a positive polarity CH HSS. Total magnetic field strength reached as high as 14 nT at 07/2230 UTC. The Bz component was mostly oriented southward over 07 Aug, reaching as far south as -13 nT at 07/2227 UTC. Solar wind speeds increased over 07 Aug from ~420 km/s to occasionally over 600 km/s after 07/2230 UTC.

Space Weather Outlook
08 August - 03 September 2022

Solar activity is expected to be low or very low during the outlook period. There are currently no significantly complex regions on the visible disk that suggest elevated potential of R1 (Minor) or greater radio blackouts.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach moderate or high levels. High levels are anticipated over 09-16 Aug and 18-14 Aug. Elevated levels are in response to influence from multiple, recurrent CH HSSs. The remainder of the outlook period is expected to reach moderate levels.

Geomagnetic field activity is expected to range from quiet to G1 (Minor) geomagnetic storm levels. G1 conditions are likely on 08 Aug and 17 Aug; active conditions are likely on 09 Aug, 18-19 Aug, 27 Aug, and 03 Sep; unsettled conditions are likely on 10-11 Aug, 20 Aug, and

28-30 Aug. Elevated levels of geomagnetic activity are anticipated in response to multiple, recurrent, CH HSSs. The remainder of the outlook period is expected to be at quiet levels.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
01 August	95	32	120	B2.0	0	0	0	3	0	0	0	0
02 August	98	31	280	B2.8	2	0	0	4	0	0	0	0
03 August	100	37	300	B2.4	2	0	0	0	1	0	0	0
04 August	109	52	300	B3.5	0	0	0	1	0	0	0	0
05 August	114	69	510	B4.0	4	0	0	4	0	0	0	0
06 August	116	69	500	B4.5	0	0	0	3	0	0	0	0
07 August	116	87	510	B4.5	2	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)		Electron Fluence (electrons/cm^2 -day -sr)
	>1 MeV	>10 MeV	>2MeV
01 August	2.7e+05	3.3e+04	3.5e+06
02 August	2.2e+05	3.3e+04	6.5e+06
03 August	1.3e+05	3.2e+04	4.3e+06
04 August	8.9e+04	3.2e+04	5.6e+06
05 August	7.5e+04	3.3e+04	1.7e+06
06 August	1.1e+05	3.3e+04	1.7e+06
07 August	2.5e+05	3.2e+04	2.4e+06

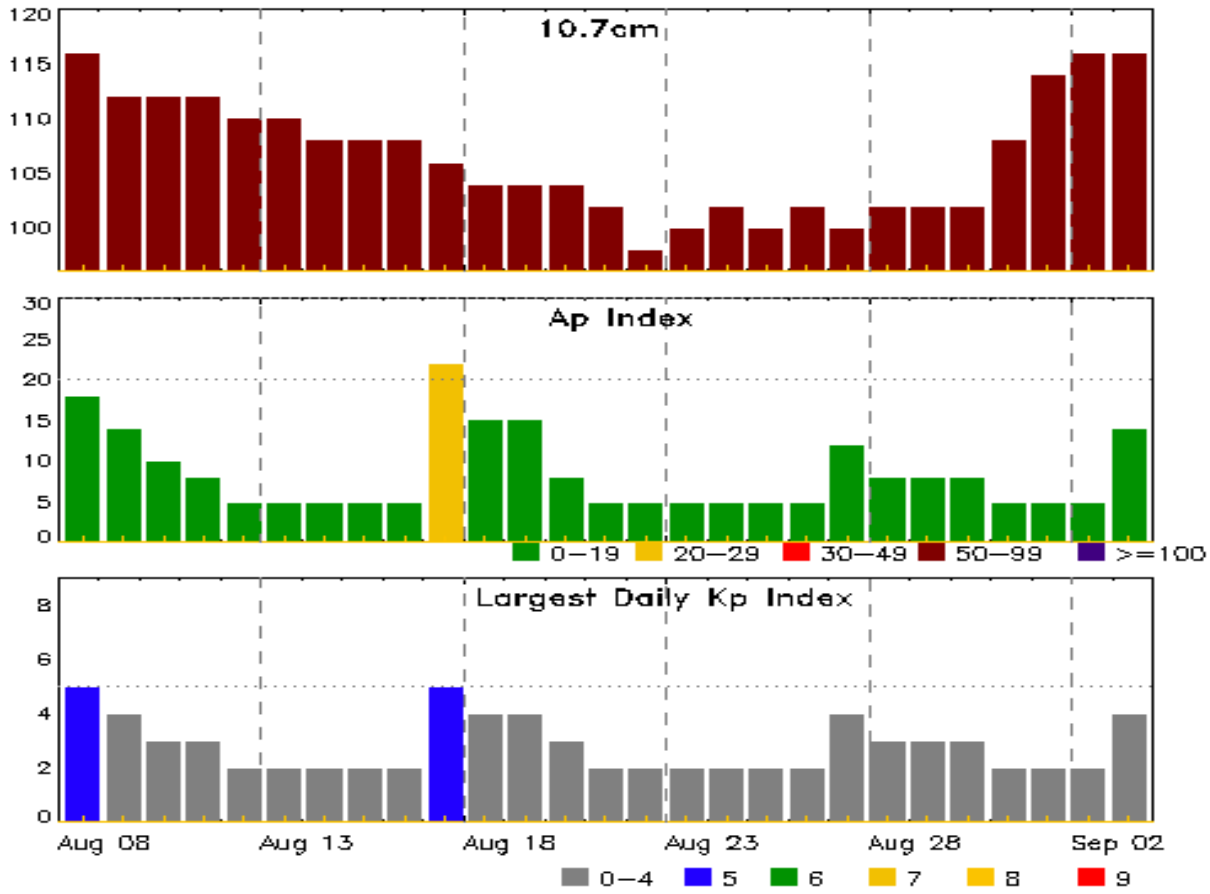
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
01 August	8	2-2-2-2-3-1-2-2	12	2-3-2-4-4-2-1-1	8	3-2-2-2-2-1-1-2
02 August	10	3-2-3-2-2-2-2-3	11	2-2-2-4-3-2-2-2	9	2-2-3-2-1-2-3-3
03 August	7	3-2-1-2-2-1-2-2	9	2-3-3-3-2-2-1-1	8	3-3-2-2-1-2-2-2
04 August	7	2-1-1-2-3-2-2-1	4	2-1-1-1-2-1-1-1	6	2-1-1-2-2-2-2-2
05 August	7	3-2-1-2-2-2-1-1	3	2-2-0-0-1-1-0-1	6	3-2-1-1-1-1-0-2
06 August	5	1-0-0-2-2-2-2-2	1	1-0-0-0-0-0-1-0	4	1-1-1-1-1-1-1-2
07 August	20	1-2-3-4-4-3-3-5	42	0-2-4-6-6-6-3-5	4	1-2-3-4-4-4-4-6

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
03 Aug 1809	ALERT: Type II Radio Emission	03/1705
05 Aug 0744	ALERT: Type II Radio Emission	05/0657
07 Aug 0312	ALERT: Type II Radio Emission	07/0226
07 Aug 0752	WARNING: Geomagnetic K = 4	07/0752 - 1800
07 Aug 1203	ALERT: Geomagnetic K = 4	07/1200
07 Aug 1429	WARNING: Geomagnetic K = 5	07/1428 - 1800
07 Aug 1748	EXTENDED WARNING: Geomagnetic K = 4	07/0752 - 08/0600
07 Aug 1748	EXTENDED WARNING: Geomagnetic K = 5	07/1428 - 2359
07 Aug 2119	WATCH: Geomagnetic Storm Category G1 predicted	
07 Aug 2224	ALERT: Geomagnetic K = 5	07/2222
07 Aug 2349	WARNING: Geomagnetic K = 6	07/2350 - 08/0300
07 Aug 2349	EXTENDED WARNING: Geomagnetic K = 4	07/0752 - 08/1200
07 Aug 2349	EXTENDED WARNING: Geomagnetic K = 5	07/1428 - 08/0900

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
08 Aug	116	18	5	22 Aug	98	5	2
09	112	14	4	23	100	5	2
10	112	10	3	24	102	5	2
11	112	8	3	25	100	5	2
12	110	5	2	26	102	5	2
13	110	5	2	27	100	12	4
14	108	5	2	28	102	8	3
15	108	5	2	29	102	8	3
16	108	5	2	30	102	8	3
17	106	22	5	31	108	5	2
18	104	15	4	01 Sep	114	5	2
19	104	15	4	02	116	5	2
20	104	8	3	03	116	14	4
21	102	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
01 Aug	0708	0719	0742	B4.2			3068
01 Aug	1059	1102	1107	B5.2	SF	S16E11	3068
01 Aug	1111	1120	1131	B5.8			3068
01 Aug	1327	1331	1337		SF	S17W77	3066
01 Aug	1357	1359	1404		SF	S17W77	3066
01 Aug	1432	1443	1450	B9.7			3066
01 Aug	1603	1609	1616	B3.4			3066
01 Aug	1703	1714	1725	B6.0			3066
01 Aug	2044	2055	2107	B4.3			3066
01 Aug	2142	2159	2210	B4.7			3066
01 Aug	2215	2221	2232	B5.1			3066
02 Aug	0518	0519	0520		SF	S17W02	3068
02 Aug	0636	0647	0704	B7.3			
02 Aug	0739	0747	0755	B5.5			
02 Aug	0825	0831	0836	B7.1	SF	S16E04	3068
02 Aug	0828	0830	0837		SF	S17W06	3068
02 Aug	0954	1000	1011	B9.5			3068
02 Aug	1430	1442	1454	B8.4			3068
02 Aug	1454	1458	1502	B7.7			3068
02 Aug	1455	1459	1510		SF	S16W08	3068
02 Aug	1515	1533	1541	C4.2			3066
02 Aug	1711	1720	1737	C1.7			3066
02 Aug	2109	2121	2123	B4.7			3066
02 Aug	2123	2132	2138	B5.5			3066
03 Aug	0120	0133	0147	B8.7			
03 Aug	0239	0247	0252	C1.3			3068
03 Aug	0434	0444	0449	B7.9			3068
03 Aug	0853	0924	0953	B8.2			
03 Aug	1654	1708	1713	C6.9	1B	S12W22	3068
03 Aug	1750	1758	1806	B6.4			3068
04 Aug	0242	0248	0255		SF	N16E21	3070

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End	Class	Imp/ Brtns	Location Lat CMD	Rgn #
04 Aug	0700	0707	0712	B3.9			3068
04 Aug	1145	1150	1155	B5.7			3068
04 Aug	1444	1451	1500	B7.3			
05 Aug	0043	0044	0045	C1.1	SF	S31W31	3068
05 Aug	0556	0607	0611	C5.5	SF	S34W33	3073
05 Aug	0620	0621	0625		SF	S34W33	
05 Aug	0629	0644	0651	C4.9	SF	S13W41	3068
05 Aug	0950	1000	1005	C1.0			3068
05 Aug	1045	1049	1053	B7.8			
05 Aug	1416	1422	1429	B7.3			3068
05 Aug	1942	1950	1954	B6.8			3068
05 Aug	2338	2349	0005	B6.6			
06 Aug	0026	0034	0042		SF	S23W42	3072
06 Aug	0056	0106	0112	B8.1	SF	S23W42	3072
06 Aug	0359	0401	0409		SF	S23W44	3072
06 Aug	0435	0441	0446	B7.6			3072
06 Aug	0645	0658	0705	B8.5			3072
06 Aug	1342	1348	1352	B7.3			3068
06 Aug	2253	2308	2321	B9.4			3068
07 Aug	1210	1217	1222	B9.0			3075
07 Aug	2122	2129	2134	B7.5			
07 Aug	2229	2235	2240	C1.1			3072
07 Aug	2253	2306	2315	C1.6			3068

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 3062												
19 Jul	S23E72	310	60	3	Hsx	1	A								
20 Jul	S26E60	308	70	2	Hsx	1	A	1							
21 Jul	S25E48	308	120	2	Hsx	1	A								
22 Jul	S26E36	306	100	2	Hsx	1	A								
23 Jul	S25E23	306	100	2	Hsx	1	A								
24 Jul	S25E10	306	90	2	Hsx	1	A								
25 Jul	S25W03	306	100	4	Cso	4	B								
26 Jul	S26W16	305	100	3	Cso	2	B								
27 Jul	S26W28	304	100	3	Cso	2	B								
28 Jul	S25W40	303	80	3	Hsx	1	A								
29 Jul	S24W53	303	70	2	Hsx	1	A								
30 Jul	S24W66	303	70	2	Hsx	1	A								
31 Jul	S25W79	303	60	2	Hsx	1	A								
								1	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 306

			Region 3066												
25 Jul	S16E15	288	30	4	Cro	5	B								
26 Jul	S16E01	287	30	4	Cro	4	B								
27 Jul	S16W13	289	20	4	Cro	4	B								
28 Jul	S17W27	290	10	3	Bxo	3	B								
29 Jul	S16W34	292	10	1	Axx	1	A								
30 Jul	S16W48	285	plage												
31 Jul	S16W62	286	plage												
01 Aug	S16W76	286	plage								2				
02 Aug	S16W90	287	plage					2							
								2	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 287

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 3067												
26 Jul	N20E65	224	70	2	Cao	3	B								
27 Jul	N20E56	221	60	4	Cao	3	B								
28 Jul	N19E40	223	0	2	Bxo	2	B								
29 Jul	N21E28	222	plage												
30 Jul	N21E14	223	plage												
31 Jul	N21W00	224	plage												
01 Aug	N21W14	224	plage												
02 Aug	N21W28	225	plage												
03 Aug	N21W42	226	plage												
04 Aug	N21W56	227	plage												
05 Aug	N21W70	228	plage												
06 Aug	N21W84	228	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 224

			Region 3068												
28 Jul	S16E58	205	40	4	Dao	4	B								
29 Jul	S15E45	205	100	8	Dao	8	B	1			9				
30 Jul	S15E30	207	100	10	Dao	6	B								
31 Jul	S15E16	208	110	11	Eso	7	B								
01 Aug	S15E02	208	120	11	Esi	9	BG				1				
02 Aug	S15W12	208	140	12	Esi	10	BG				4				
03 Aug	S15W24	207	180	12	Esi	16	BG	2				1			
04 Aug	S15W39	210	160	11	Esi	15	BG								
05 Aug	S15W52	210	210	8	Dso	7	B	3			2				
06 Aug	S15W66	210	190	8	Cao	7	B								
07 Aug	S15W83	214	90	3	Hax	3	A	1							
								7	0	0	16	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 208

			Region 3069												
31 Jul	S18W36	260	10	1	Axx	1	A								
01 Aug	S18W50	260	plage												
02 Aug	S18W64	261	plage												
03 Aug	S18W78	262	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 260

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 3070												
01 Aug	N15E50	160	0	3	Bxo	3	B								
02 Aug	N15E36	161	plage												
03 Aug	N15E22	162	plage												
04 Aug	N15E08	163	plage								1				
05 Aug	N15W06	164	plage												
06 Aug	N15W20	164	plage												
07 Aug	N15W34	165	plage												
								0	0	0	1	0	0	0	0
Still on Disk. Absolute heliographic longitude: 164															
			Region 3071												
02 Aug	S16E68	129	140	3	Hsx	1	A								
03 Aug	S19E58	126	120	2	Hsx	1	A								
04 Aug	S19E43	128	120	2	Hsx	1	A								
05 Aug	S19E30	128	120	2	Hsx	2	A								
06 Aug	S19E17	127	110	2	Hsx	1	A								
07 Aug	S19E04	127	100	2	Hsx	1	A								
								0	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 127															
			Region 3072												
04 Aug	S23W26	197	20	4	Cro	6	B								
05 Aug	S23W40	198	20	5	Bxo	6	B								
06 Aug	S23W53	197	40	5	Cao	4	B				3				
07 Aug	S23W67	198	30	5	Cso	4	B	1							
								1	0	0	3	0	0	0	0
Still on Disk. Absolute heliographic longitude: 197															
			Region 3073												
05 Aug	S35W45	203	40	4	Cao	3	B	1							
06 Aug	S34W57	201	40	5	Cao	4	B								
07 Aug	S34W71	202	40	5	Cao	4	B								
								1	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 203															

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 3074												
05 Aug	S18E68	90	120	2	Hsx	1	A								
06 Aug	S17E54	90	120	2	Hsx	3	A								
07 Aug	S16E40	91	120	2	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 91

			Region 3075												
07 Aug	N21E54	77	20	5	Cro	3	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 77

			Region 3076												
07 Aug	N16E69	62	110	2	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 62

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

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